U.S.S.N.:

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Filing Date: September 29, 2003

EMC Docket No.: EMC-03-100

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the

Application.

Listing of Claims:

1. (Previously presented) In a data storage environment having a first volume of data

denominated as the source being stored on a data storage system, and a second volume of data

denominated as the clone, which has data content that is a copy of the data content of the source

being stored on the data storage system, a method, operable on a computer system, for protecting

the clone's data content during a restoration of the source, the method comprising the steps of:

restoring the source by copying data content from the clone to overwrite the data content

of the source[[; and]] while allowing host reads and writes to the Source during the restore

restoring step, said copying being determined by a clone delta map used to track extents of the

clone that are different between the clone and the source; and

preserving the data content of the clone by not allowing it to be overwritten by host

writes during the restoring step[[.]];

recording data content of the source affected by a host write in a protected restore map

used to track extents of the source that are modified during the restoring and preserving steps;

and

setting the protected restore map as the delta clone map after the restoring step is

completed.

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(Original) The method of claim 1, wherein the source and the clone are each represented 2.

by respective first and second logical units.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

(Currently amended) The method of claim [[4]] 1, wherein the clone delta map is used 6.

to copy only extents that are different between the clone and the source during the restoring step.

The method of claim 6, wherein the protected restore map is 7. (Previously presented)

coordinated with the clone delta map for processing of requests to write data to the source.

8. (Currently amended) A system for protecting data content during restoration of data

from a second volume of data to a first volume of data, the system comprising:

a data storage system having a first volume of data denominated as the source being

stored on a data storage system, and a second volume of data denominated as the clone, which

has data content that is a copy of the data content of the source being stored on the data storage

system;

computer-executable program logic, provided from a computer-readable medium,

configured for causing the a computer to execute the steps of:

restoring the source by copying data content from the clone to overwrite the data content

of the source[[; and]] while allowing host reads and writes to the source during the restoring step,

said copying being determined by a clone delta map used to track extents of the clone that are

different between the clone and the source restore; and

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preserving the data content of the clone by not allowing it to be overwritten by host writes during the restoring step;

recording data content of the source affected by a host write in a protected restore map used to track extents of the source that are modified during the restoring and preserving steps; and

setting the protected restore map as the delta clone map after the restoring step is completed.

- 9. (Original) The system of claim 8, wherein the source and the clone are each represented by respective first and second logical units.
- 10. (Cancelled)
- 11. (Cancelled)
- (Cancelled) 12.
- 13. (Currently amended) The system of claim [[11]] 8, wherein the clone delta map is used to copy only extents that are different between the clone and its source during the restoring step.
- 14. (Previously presented) The system of claim 13, wherein the protected restore map is coordinated with the clone delta map for processing of requests to write data to the source.

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15. (Currently amended) A program product for use in a data storage environment and

being for protecting data content during restoration of data from a second volume of data to a

first volume of data, wherein the data storage environment includes:

a data storage system having a first volume of data denominated as the source being

stored on a data storage system, and a second volume of data denominated as the clone, which

has data content that is a copy of the data content of the source being stored on the data storage

system; and

the program product includes computer-executable logic, provided from a computer-

readable medium, and which is configured for causing a computer to execute the steps of:

restoring the source by copying data content from the clone to overwrite the data content

of the source[[; and]] while allowing host reads and writes to the Source during the restoring step

restore, said copying being determined by a clone delta map used to track extents of the clone

that are different between the clone and the source; and

preserving the data content of the clone by not allowing it to be overwritten by host

writes during the restoring step;

recording data content of the source affected by a host write in a protected restore map

used to track extents of the source that are modified during the restoring and preserving steps;

and

setting the protected restore map as the delta clone map after the restoring step is

completed.

16. (Original) The program product of claim 15, wherein the source and the clone are each

represented by respective first and second logical units.

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- 17. (Cancelled)
- 18. (Cancelled)
- 19. (Cancelled)
- 20. (Currently amended) The program product of claim [[18]] 15, wherein the clone delta map is used to copy only extents that are different between the clone and its source during the restoring step.
- 21. (Previously presented) The program product of claim 20, wherein the protected restore map is coordinated with the clone delta map for processing of requests to write data to the source.

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